

THE EFFECT OF PROFITABILITY, FINANCIAL LEVERAGE, COMPANY SIZE, AND EARNINGS PER SHARE ON FINANCIAL DISTRESS IN TRANSPORTATION SECTOR MANUFACTURING COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE IN 2019 – 2021

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Abstract

This study aims to determine the influence of several factors that influence financial distress that occurs in several infrastructure, utilities, and transportation sector companies listed on the Indonesia Stock Exchange. This research is a causative study or research that states that one variable affects another variable. The influencing variables are called independent variables and in this study are Profitability, Financial Leverage, Company Size and Earnings Per Share. The affected variables are called dependent variables and in this study the dependent variables are dummy, namely Financial Distress. The method in sampling, using the purposive sampling method and using Logistic Regression Analysis as a research test tool using SPSS Statistics 22 software. The sample used is a manufacturing company in the transportation sub-sector (Infrastructure, Utilities, and Transportation) listed on the IDX in 2019-2021. The results of data selection using the purposive sampling method stated that, the samples used in this study were as many as 45 companies and because they used a research period of 3 years, the number of samples was 135 samples. The results of this study show that Financial Leverage and Earnings Per Share do not have a significant effect on Financial Distress, while Profitability has a negative and significant effect on Financial Distress and Company Size has a positive and significant effect on Financial Distress.

Keywords: Profitability (ROA), Financial Leverage (DER), Company Size (LN Total Assets), Earnings Per Share, and Financial Distress (ICR)

INTRODUCTION

The Covid-19 pandemic is a phenomenon that cannot be avoided by all people in the world. This phenomenon has a bad impact on all parties, especially in the field of the country's economic sector. Indonesia began to be affected by Covid-19 in March 2020. This phenomenon brings a lot of losses to the Indonesian state. Quoted from Kawalcovid19 (2022), the number of deaths of covid-19 positive victims in Indonesia reached 157,591 people. Not only has Indonesia experienced a significant number of deaths, but Indonesia also experienced a decline in economic growth due to several important economic sectors in Indonesia having to be hampered due to this Covid-19 phenomenon. The World Bank downgraded Indonesia's status from a middle-upper-income country to a lower-middle-income country. This is because *Indonesia's gross national income* (GNI) per capita fell from US\$ 4,050 in 2019 to US\$ 3,870 in 2020. One of the important economic sectors in Indonesia that experienced a decline in financial performance was the transportation sector in Indonesia (Yohana Artha Uly, 2021).

This phenomenon is in stark contrast to the circumstances in which Covid-19 has not yet occurred. Setijadi (2019) explained that the transportation sector experienced a significant growth from 2016-2018 and in 2019 it is predicted to grow to 11.15% to Rp 740.4 trillion. The highest contributors were still from land transportation of Rp 380.8 trillion (51.43%) and air transportation of Rp 282.2 trillion (38.12%). It was followed by sea freight (6.50%), land transport (road), river, lake and crossing transport (2.30%) and rail transport (1.66%). Although ground freight contributed the highest, the highest growth rate in 2019 is predicted in air freight (17.37%) and rail transport (17.11%). The growth of other transportations is predicted to be below 10%, namely land (road) transportation of 7.55%, sea transportation of 6.65%, and river, lake and crossing transportation of 6.24%. The data can be viewed based on Figure 1.1.

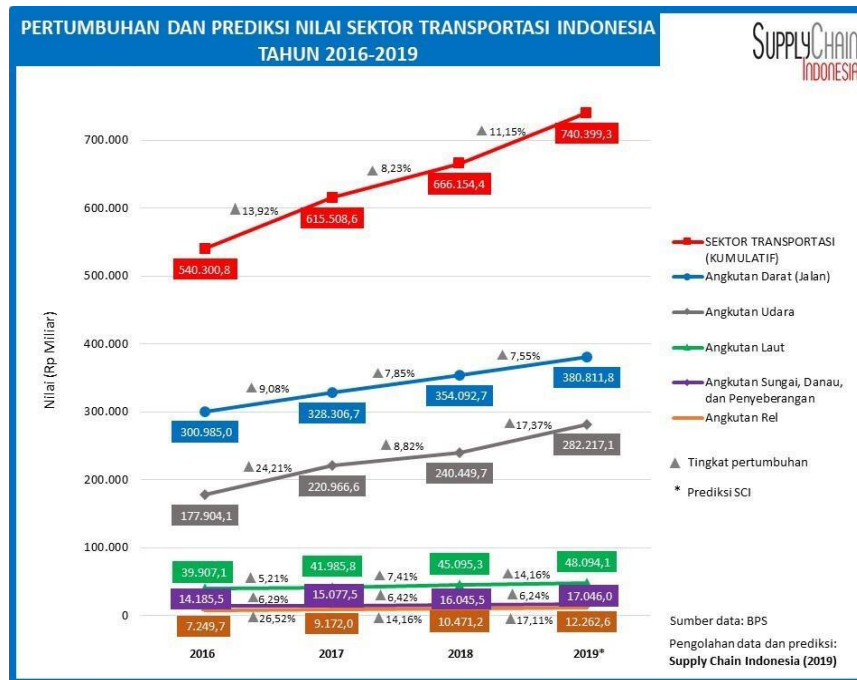


Figure 1.1 Growth and Prediction of The Value of Indonesia's Transportation Sector 2016-2019

This research focuses on problems that occur in the transportation sector which continues to experience pressure during the Covid-19 pandemic. The decline in public interest in traveling certainly triggered a decrease in the turnover of transportation businesses which also had an impact on the economic chain in Indonesia. This is evident in the GDP growth data released by the Central Statistics Agency (BPS) showing that this sector has experienced a significant decline. The following is the data on the GDP growth rate of the transportation sector according to the Central Statistics Agency (BPS) which is decomposed in Table 1.1.

Table 1.1
GDP Growth Rate of Transportation and Trade Sector
Quarterly to same quarter of the previous year (y-on-y) of 2020

No.	PDB LAPANGAN USAHA	TRIWULAN I	TRIWULAN II	TRIWULAN III	TRIWULAN IV	TAHUNAN
1	TRANSPORTASI DAN PERDAGANGAN	1,29	-30,8	-16,71	-13,42	-15,04
2	ANGKUTAN REL	-6,95	-63,75	-51,11	-45,56	-42,34
3	ANGKUTAN DARAT	5,15	-17,65	-5,03	-3,5	-5,34
4	ANGKUTAN LAUT	5,89	-17,28	-5,27	-1,19	-4,57
5	ANGKUTAN SUNGAI DANAU DAN PENYEBERANGAN	1,16	-26,66	-13,51	-12,28	-13
6	ANGKUTAN UDARA	-13,21	-80,25	-63,9	-53,81	-53,01
7	PERDAGANGAN DAN JASA PENUNJANG ANGKUTAN; POS DAN KURIR	-0,7	-38,53	-17,57	-13,12	-17,61

The Central Statistics Agency (BPS) noted that the growth rate of Gross Domestic Product (GDP) in the transportation and trade sector experienced the deepest distraction with minus 15.04% in 2020, even though the logistics sector grew positively by 10.51% in 2019. The transportation sector that was hardest hit by the pandemic was air freight with minus 80.25% in the second quarter on a year-on-year basis and rail freight with minus 63.7%.

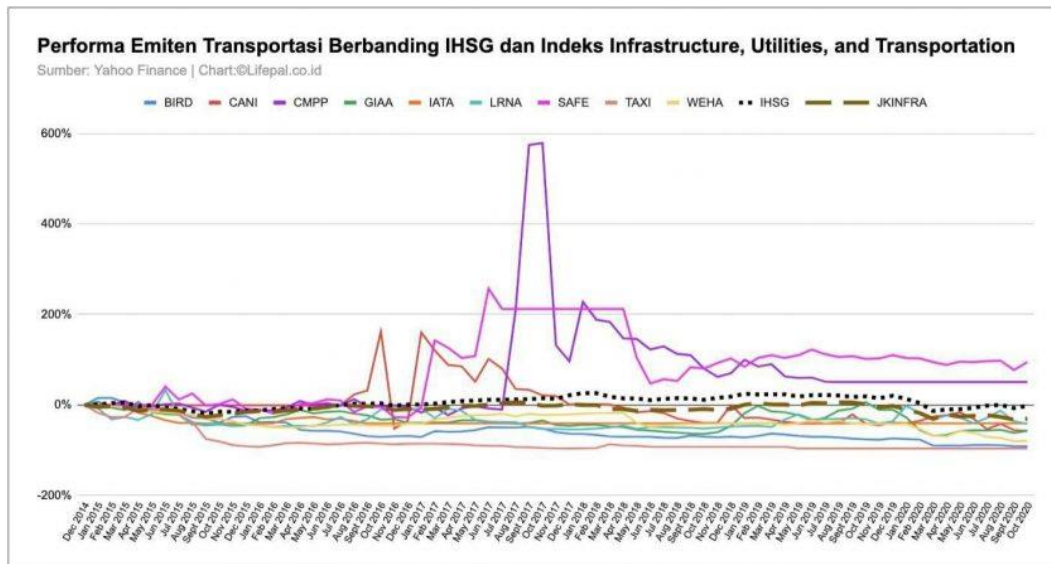


Figure 1.2 Performance of Transportation Issuers Compared JCI and *Infrastructure, Utilities, and Transportation* Index

According to the chart data on the official website of the Lifepal Insurance Company, there are two transportation issuers whose performance is above the JCI and the *Infrastructures, Utilities and Transportation* Index. One of them is PT Air Asia Indonesia Tbk (CMPP). PT Indonesia Air Asia operated as Indonesia Air Asia is a low-cost airline based in Jakarta, Indonesia. The airline operates domestic flights. Performance above the JCI (Composite Stock Price Index) and *infrastructures, utilities, and transportation index*, CMPP actually recorded a decline in sales.



Figure 1.3 CMPP Financial Statements

Based on figure 1.3 of CMPP's financial statements, there was a downward trend in sales during the Covid-19 pandemic, namely by -71.08% to 1.39 Trillion Rupiah in the Third Quarter of 2020 from the previous amount of 4.82 Trillion Rupiah in the Third Quarter of 2019. In terms of comprehensive profit, in the third quarter of 2020, CMPP recorded a loss of -1.87 trillion rupiah. This is due to a decrease in sales due to the Large-Scale Social Restrictions policy and a decrease in financial income in the third quarter of 2020 (Aldo Jonathan, 2022).

Large-Scale Social Restrictions (PSBB) implemented in Indonesia triggered the movement of people in transportation centers that began to decline. People's movements after March continued to decline until the lowest point in May 2020. After May 2020, people's movements began to increase, but still did not return to normal due to various restrictions on social activities. In the second quarter of 2020, there was a decrease of -30.84% while in the third quarter of 2020, there was a decrease of -16.70% although it actually experienced an increase from the previous quarter. The contraction in growth in the third quarter of 2020 was not as deep as in the second quarter of 2020 due to the adaptation of new habits or the easing of the PSBB (Aldo Jonathan, 2022).

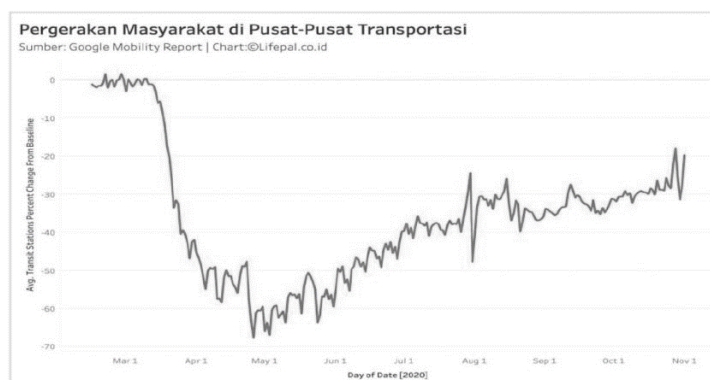


Figure 1.4 Community Movements in the Center – Transportation Hub

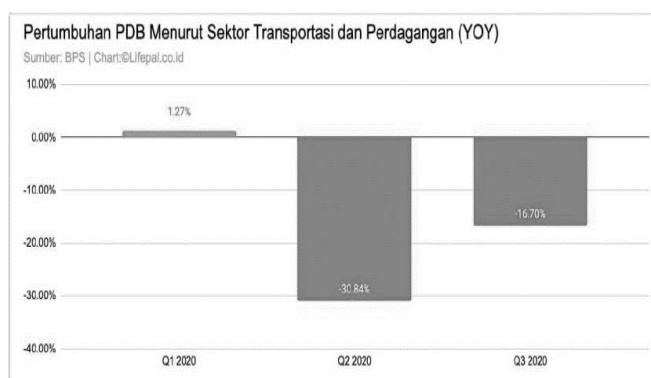


Figure 1.5 GDP Growth By Transportation and Trade Sector (YOY)

Based on the background that has been listed, it can be seen that the transportation sector in Indonesia has experienced a significant decline in financial performance due to the Covid-19 phenomenon such as a decrease in stock prices and a decrease in GDP (Gross Domestic Sales), this can be indicated as a *phenomenon of financial distress*.

According to Christine *et al.* (2019) in his research entitled "The Effect of Profitability, Leverage, Total Cash Flow and Company Size on *Financial Distress* in *Property* and *Real Estate* Companies contained on the Indonesia Stock Exchange in 2014 – 2017" stated that the variables of Profitability, Leverage, Total Cash Flow have a significant effect on *Financial Distress*, while the Size of the Company has no effect on *Financial Distress* in *Property* and *Real Estate* companies on the Indonesia Stock Exchange in 2014-2017. In the observations made christine *et al.* (2019) also mentioned that Profitability, Leverage, Total Cash Flow and Company Size simultaneously affect *financial distress* in *Property* and *Real Estate* companies on the Indonesia Stock Exchange in 2014 – 2017 which is known from the coefficient of determination of 88.6% while the remaining 11.4% is influenced by other variables that are not studied.

According to Dirman (2020) in his research entitled "*Financial Distress: The Impacts of Profitability, Liquidity, Leverage, Firm Size, and Free Cash Flow*" stated that the profitability variable has a positive effect on *financial distress* while variable liquidity, leverage, and free cash flow do not affect *financial distress* and the company size variable negatively affects *financial distress*.

The results of research conducted by Dirman (2020), Saputra & Salim (2020), Finishtya (2019), Masdupi *et al.* (2018), and Christine *et al.* (2019) proved that profitability has a significant effect on *financial distress*. Meanwhile, research conducted by Azalia & Rahayu (2020) and Zhafirah & Majidah (2019) stated that profitability has no effect on *financial distress*. Then in addition to profitability, there is another financial ratio that can be used to predict the occurrence of *financial distress*, namely *financial leverage*.

Several researchers have previously conducted research on the effect of *financial leverage* on *financial distress*. The results of research conducted by Masdupi *et al.* (2018), Lestari *et al.* (2020) and Fitria & Syahrenny (2022) proved that *financial leverage* has a significant effect on *financial distress*. Meanwhile, the results of research conducted by Dirman (2020), Saputra & Salim (2020) and Rahmy (2015) show that *financial leverage* has no effect on *financial distress*.

Research on the effect of company size on *financial distress* has also been carried out by several previous researchers. The results of research conducted by Azalia & Rahayu (2020), Dirman (2020), Zhafirah & Majidah (2019) & Lestari *et al.* (2020) proves that the size of the company has a significant effect on *financial distress*. Meanwhile, the results of research conducted by Fitria & Syahrenny (2022), and Saputra & Salim (2020), prove that the size of the company has no effect on *financial distress*.

Research conducted by Murni (2018) proves that *earning per share* (EPS) has an insignificant negative influence on *financial distress* while research conducted by Kurniasari and Erlina (2021) proves that *earning per share* (EPS) has

a positive and significant influence on the occurrence of *financial distress* this is because the stock profit is too large, also the company diverts a lot of profits to its shareholders while the number of shares outstanding is too small so that the company's operating profit will decrease or decrease, with the decline in the company's profit, the possibility of *financial distress* will be lower or smaller.

LITERATURE REVIEW

Signaling Theory

Signalling theory explains why companies have the impetus to provide financial statement information to external parties (Sofiatin, 2020). The company's push to provide information is because there is an asymmetry of information between the company and outside parties because the company knows more about the company's condition and upcoming prospects than outside parties (investors and creditors). Signal theory in the topic of *financial distress* explains that if the financial condition and prospects of the company are good, the manager signals by organizing liberal accounting. On the other hand, if the company is in a *state of financial distress* and has poor prospects, managers signal by organizing conservative accounting (Pratama & Setiawati, 2022).

Financial Distress

Brahmin (2007) explained that a company can be called experiencing *financial distress* or financial difficulties if the company shows a number of negative figures on operating profit, net profit, and book value of equity in the merger. *Financial distress* is used to indicate a condition when premiums to creditors are violated or kept but with difficulty, the term *financial distress* itself is used in the *corporate finance* dictionary (Gobenvy, 2014). Luciana (2004) defines *financial distress* as a condition where a company experiences a condition where the company's net profit and equity book value are negative and the company has experienced a merger, so the company must be *delisted*. Basically, *financial distress* is difficult to define definitively because the company's financial condition when experiencing financial difficulties can be characterized by various things, for example, company dividends that cannot be paid or minus, company closures, dismissal of workers and employees, and falling company stock prices (Rahmy, 2015).

Analysis of financial statements

Financial statement analysis is the activity of identifying, assessing, processing and comparing financial statement information into actual and in-depth information. According to Kasmir (2008) in Rahmy (2015) stated that in order for financial statements to be better understood by various parties, it is necessary to analyze financial statements. This is achieved by analyzing financial statements. The model that is often used in carrying out such analysis is in the form of financial ratios. *Financial Ratio Analysis* is an analytical tool used by companies to assess financial performance based on comparative data from each post contained in financial statements such as Balance Sheet Statements, Losses / Profits, and Cash Flows in a certain period.

1. Profitability

Profitability is the ability of a company to make a profit over a certain period at a certain level of sales, assets and share capital. The profitability of an enterprise can be assessed in various ways depending on profits and assets or capital that will be compared with each other. According to Wahyuni & Ardini (2017) profitability is the company's ability to generate profit (profit). Profitability is a ratio used in describing the company's capacity every time a sales transaction occurs to create the company's profit. According to Rahmy (2015) The profitability ratio will give the final answer about the effectiveness of the company's management, this ratio gives an idea of the degree of effectiveness of the company's management.

Return On Assets Ratio

The rate of return on assets is a profitability ratio to assess the percentage of profit (profit) obtained by the company related to resources or total assets so that the efficiency of a company in managing its assets can be seen from the percentage of this ratio.

$$ROA = \frac{\text{net income}}{\text{total assets}}$$

Information:

A. ROA : Return on profit rate based on total assets.

B. *Net Income* : The net profit that the company has after interest and taxes.

C. *Total Assets* : A total of the company's current and non-current assets within a certain period of time.

2. Financial Leverage

Financial leverage is the use of borrowed money (debt) to finance the purchase of assets in the hope that the income or *capital gains* from new assets will exceed the cost of borrowing. Keown (2008) states that *the leverage ratio*

represents the level of interest expense and debt expense incurred by a company using external funds. It refers to the *deep trade-off* model in which the use of debt at an optimal level can increase the value of the company's profits so that possible financial difficulties are unlikely to occur.

According to Munawir (2004:239) *the leverage ratio* is a ratio to measure how far the company's assets are financed from debt. By knowing the *leverage ratio* will be able to find out about:

1. The company's position on all its obligations to other parties.
2. The company's ability to fulfill obligations of a fixed nature.
3. The balance between the value of fixed assets and capital.

Basically, to assess how much debt is worth in financing a company's investment, the company will use *financial leverage* (Rahmy, 2015).

Debt To Equity

This ratio indicates an attempt to show the relative proportion of the lender's claims to ownership rights and is used as a measure of the role of debt. This version analyzes the proportion of debt involving the ratio of total debt, usually current liabilities and all types of long-term debt to total debt, usually current liabilities and all types of long-term debt to the total equity of the owner. The formula is as follows:

$$\text{Debt To Equity Ratio} = \frac{\text{Total Debt}}{\text{Equity}}$$

Information:

- | | |
|-------------------------|---|
| A. Debt to Equity Ratio | : A ratio used to measure a company's ability to pay the total debt |
| B. Total debt | : Total short-term debt & long-term debt in a period |
| C. Equity | : The amount of Equity in a period |

3. Company Size

The size of the company is a scale that can be calculated by the level of total assets and sales that can show the condition of the company where the larger company will have an advantage in the source of funds obtained to finance its investment in making a profit. The size of the company can be used to represent the financial characteristics of the company. Large companies that are well established will find it easier to obtain capital in the capital market than small companies. Because this ease of access means that large companies have greater flexibility.

Company Size = Ln Total Assets

Assets are wealth or resources owned by an enterprise. The larger the assets owned, the company can make investments well and meet the demand for products. This further expands the market share achieved and will affect the company's profitability.

Information:

LN *Total Assets* = Natural Logarithm of total current assets & fixed assets

4. Earning Per Share (EPS)

Earnings per share (EPS) is the expected earnings from per share. EPS data is always used to evaluate the operating performance and profitability of a company (Subramanyam and John, 2010). According to Rahardjo (2005) EPS is used by ordinary shareholders to assess and evaluate the performance of a company rather than the dividend distributed. Usually this data will affect the price of stocks in the market.

The company will have good growth if the value of EPS is positive. Generally, investors will hesitate to invest their capital in a company if the company does not have a positive EPS, because negative EPS indicates that the company's growth in the future may not be able to grow properly and will trigger a *financial distress* condition on the company (Kurniasari & Erlina, 2021). The higher the number of shares outstanding when compared to the percentage of profit increase, the higher the probability of the company experiencing *financial distress*. EPS can be calculated using the formula:

$$\text{EPS} = \frac{\text{Net profit after tax}}{\text{Number of shares outstanding}}$$

Information:

- | | |
|-------------------------|--|
| A. EPS | : The rate of shares outstanding in the market |
| B. Net profit after tax | : The amount of net profit after tax |

C. Number of shares outstanding : The number of ordinary shares outstanding

Hypothesis Development

The Effect of Profitability on *Financial Distress*

Profitability is the company's ability to make a profit during a certain period, a company with a good profit-making ability shows good company performance because profitability is often used as a measure to assess the company's performance (Riyanto: 2008). Profitability is the rate of success or failure of an enterprise over a certain period of time. Rahmy (2015) stated that profitability ratios can be used as a reference to show the final results of a number of policies and decisions, such as *profit margin on sales*, *return on total assets* and so on.

Previous research has been conducted by Finishtya (2019), Rahmy (2015), Fitria & Syahrenny (2022), Nilasari (2021), and Azky *et al.* (2021) states that profitability has a negative and significant effect on *financial distress*. The greater the level of profitability, the likelihood that the company will experience a condition of financial difficulties will be smaller, with an increase in the level of the company's profit in one period, the management will try to give a positive signal to the stakeholders, because with a large level of profit, it reflects that the company is in good condition and prospects for investors to invest in their company, thus it will also affect the level of *financial distress*.

Based on previous researchers who were used as references and signal theories used by the author, the author also stated that the greater the level of profitability in the company, the more the company will be avoided from *financial distress* conditions, so the author formulated hypothesis 1 as follows:

H1: Profitability negatively affects financial distress in transportation sector manufacturing companies listed on the IDX in 2019 – 2021.

The Effect of *Financial Leverage* on *Financial Distress*

Financial leverage indicates the company's ability to use capital from borrowed funds to create good returns and reduce costs. The ratio on *leverages* will be an important consideration tool for investors or creditors to assess their investments. That is the reason why *financial leverage* has a significant impact on companies. The *leverage* ratio is a ratio used to measure the extent to which a company's capital is financed by debt. According to Rahmy (2015) if the financing of a company is more dominant in using debt, the risk of difficulty in paying debt in the future may occur because capital financing using debt is greater than capital financing using company assets. If these conditions cannot be overcome, the potential for *financial distress* will be even greater. This means that the greater the amount of company debt, the more likely it is that the company will not be able to pay its short-term debt or long-term debt, so the possibility of the company experiencing *financial distress* will be greater.

Previous research conducted by Azalia & Rahayu (2020), Fitria & Syahrenny (2022), and Nilasari (2022) stated that *financial leverage* has a positive and significant effect on financial difficulties, meaning that the greater the level of leverage in a company, the possibility of *financial distress* conditions will get bigger and bigger. Generally, companies try to provide good information in order to convince investors to invest in shares in the company, but in terms of the level of *leverage* ratio, the amount of high *leverage* ratio will not affect the level of *financial distress*. Companies that have a high level of *leverage* ratio will still provide this information to stakeholders, because the company is able to manage and use debt as funding for capital properly and structured, thus the company is able to avoid financial difficulties because the loan is used as well as possible, so that the management will continue to provide information for capital properly regarding the level of the *company's leverage* ratio to stakeholders to be used as a reference in making decisions.

Based on previous researchers and the theory that has been explained, the author still uses the statement that the greater the level of *financial leverage* of the company, the higher the probability of *financial distress* conditions, because according to the author, if the amount of debt of a company is greater than the amount of capital, then the company must be able to manage the loan as well as possible, because if the company is unable to manage the loan is good, then the capital turnover will be hampered and it is very likely that the company will experience a *financial distress* condition. Based on the above, the author formulates hypothesis 2 as follows:

H2: Financial leverage has a positive effect on financial distress in transportation sector manufacturing companies listed on the IDX in 2019 – 2021.

The Effect of Company Size on *Financial Distress*

Companies with positive growth give a sign that the size of such companies is growing and reducing the tendency towards bankruptcy (Gobenvy, 2014). The scale of grouping businesses into small and large companies is the meaning of company size (Zhafirah & Majidah, 2019). Kristanti (2019) said that the size of small companies experiences more potential *financial distress* if matched with large sizes. Macroeconomics will affect small companies if matched with the size of large companies because larger companies have a small level of *financial distress*. Large companies are more averse to *financial distress* because in general large companies have better fundamental strength than small companies so they are vulnerable to financial shocks (Wardhani, 2007 in Salim & Dillak, 2021).

Previous research conducted by Dirman (2020), Azalia & Rahayu (2022) stated that the size of the company has a negative and significant effect on the condition of financial difficulties, meaning that the level of large company size

will reflect the company's strong fundamental conditions, then the company will be further avoided from *financial distress* conditions. . A company with large total assets reflects that the company has strong fundamental conditions, with the information provided by the management regarding the size of the company as measured by the natural logarithm of total assets, it is hoped that all stakeholders can further consider making decisions to invest in the company.

Based on previous researchers and the theory that has been explained, the author also follows the hypothesis of previous researchers, namely that the greater the level of the size of the company, the more likely or probability of the company experiencing *financial distress* will decrease. In general, the strength of large companies will be seen from the condition of fixed assets, the company's ability to manage and use its fixed assets as well as possible will allow the company to continue to develop forward and avoid *financial distress* conditions. Based on the information already described, the author formulates hypothesis 3 as follows:

H3: The size of the company negatively affects the *financial distress* of transportation sector manufacturing companies listed on the IDX in 2019 – 2021.

The Effect of Earnings Per Share on Financial Distress

Earnings per share (EPS) is the expected earnings per share. EPS data are widely used to evaluate the operating performance and profitability of enterprises (Subramanyam and John, 2010. According to Fahmi (2012) *earnings per share* (EPS) is a form of providing benefits given to shareholders from each share owned.

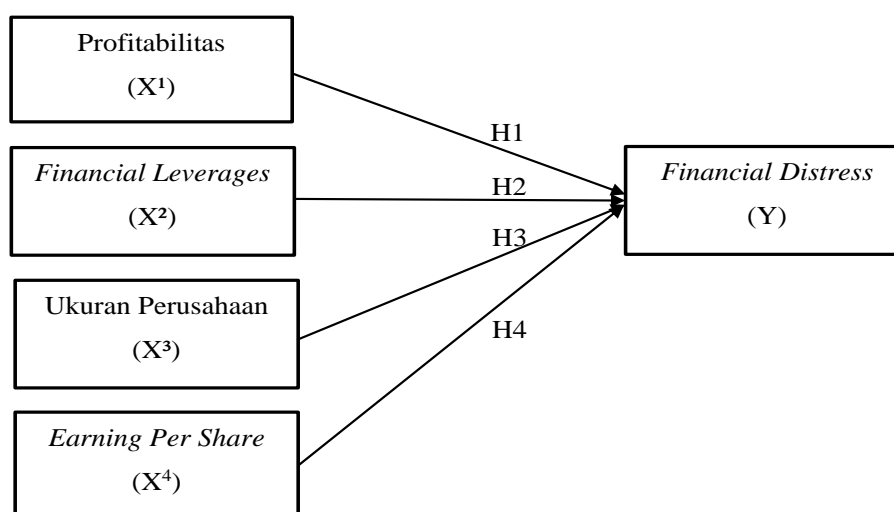
Previous research conducted by Murni (2018) stated that *earnings per share* negatively affects the condition of financial difficulties, meaning that the higher (positive) the value of EPS, the more likely it is that *financial distress* conditions will decrease. The company will experience good growth if the value of EPS is positive. However, if the company has a negative EPS, investors will hesitate to invest in the company because a negative EPS will trigger a *financial distress* condition in the company. The higher/greater the EPS value, the smaller the probability of *financial distress* (Kumiasari and Erlina, 2021).

Based on previous researchers and the theory that has been explained, the author also agrees with the formulation of the Murni hypothesis (2018), namely that the greater the *level of earnings per share* (EPS), the probability or probability of the company experiencing *financial distress* will decrease. *Positive earnings per share* (EPS) can be realized if the number of shares outstanding decreases or remains, while the company's profit level increases or remains. Based on the information already described, the author formulates hypothesis 4 as follows:

H4: EPS negatively affects *financial distress* in transportation sector infrastructure companies listed on the IDX in 2019 – 2021.

Frame of Mind

For informasi, the following is an overview of the research model to explain the influence between independent variables and dependent variables.



Gambar 2.1 Kerangka Pemikiran

RESEARCH METHODS

Population and Sample

The population in this study is all infrastructure, utilities, and transportation companies listed on the Indonesia Stock Exchange (IDX) during the period 2019-2021. The data used is secondary data and is obtained from audited financial statements through the Indonesia Stock Exchange website. In this study, the sampling method used was a *purposive sampling* method with the following criteria:

Table 1. Purposive Sampling Methods

No.	Sample Criteria	Total
1	Transportation Sector Manufacturing Companies Listed on the IDX in 2019 - 2021	77
2	Transportation Sector Manufacturing Companies <i>listed</i> on the IDX in 2019-2021 that Do Not Meet the Sample Criteria	(32)
Total Sample		45

Source: Processed Data

Based on the sampling used, the number of companies that meet the criteria is 45 (forty-five) companies with an observation period of about ten (3) years from 2019-2021.

Data collection techniques

To obtain the data needed in this study, the author used documentation observation techniques by looking at the financial statements published by the sample company through the official website of the www.idx.co.id. With this technique, the author collects written data on documents – documents, archives, and others related to the object of study to obtain secondary data.

Analysis Methods

1. Inferential Analysis (Logistic Regression)

Inferential statistical analysis in this research using *logistic regression* analysis. The reason for using a *logistic regression* tool is because the dependent variable is dummy (accepting or not receiving an opinion going audit concern) logistic regression is almost the same as descriptive analysis, which is used to test whether the probability of occurrence of a bound variable can be predicted by its free variable (Ghozali, 2011: 333).

Hypothesis testing is carried out using the *logistic regression* analysis method because it has one dependent (bound) variable that is non-metric (nominal) and has more than one independent (free) variable. Logistic regression is a regression that is used to test whether the probability of occurrence of dependent variables can be predicted by independent variables. In logistic regression analysis techniques, there is no longer a need for normality tests and classical assumption tests on free variables (Ghozali, 2011: 333).

In the study, binary logistic regression analysis was used because the bound variable (Y) used had 2 categories, namely companies that *experienced financial distress* (1) and companies that did not experience *financial distress* (0).

Logistic regression analysis is used to test whether variables of profitability, *financial leverage*, company size and *earnings per share* affect *financial distress*. The regression model developed in this study is as follows:

$$Y = \alpha + \beta_1 (PRO) + \beta_2 (FL) + \beta_3 (SIZE) + \beta_4 (EPS) + \varepsilon$$

Information:

Y = *Financial distress* (dummy variable, 1 if the company experiences *financial distress*, 0 if the company does not experience *financial distress*, measured using ICR)

α = Constants

PRO = Profitability measured by ROA ratio

FL = *Financial leverage* measured by DER

SIZE = The size of the company measured by the LN of *total assets*

EPS = *Earnings per share*

$\beta_1 - \beta_4$ = Regression coefficient

ε = Error coefficient

Operational Variables

Dependent Variable (Y)

Dependent variables are variables that are affected or become the result of the existence of free variables. The dependent variable in this study is *financial distress*. *Financial distress* in this study was calculated using equations as

in the research of Rahmy (2015), Munzir *et al.* (2022), and Azky *et al.* (2021) namely using the calculation of the *Interest Coverage Ratio* as a measuring tool in proxying *financial distress*. *Interest Coverage Ratio* is a ratio that shows how much the company's ability to repay its interest debt. A company will be considered to be experiencing a condition of financial difficulties if the $ICR < 1$ (Azky *et al.*, 2021). In this study, the dependent variable is presented in the form of a dummy variable with a binomial size, namely a zero value (0) if the company has an $ICR > 1$ and one (1) if the company has an $ICR < 1$.

Independent Variables (X)

1. Profitability (X1)

Profitability assessment is an assessment of the condition of the company's ability to generate *earnings* to support operations and capital. Profitability is measured using the *return on assets* (ROA) ratio.

$$ROA = \frac{\text{net profit}}{\text{total assets}}$$

2. Financial Leverage (X2)

In this study, *financial leverage* was used to assess how much debt is worth in financing a company's investment. *Financial leverage* in this study is measured by comparing total debt to equity *ratio*. The *debt to equity ratio* formula according to Hendra (2009: 199) in Noeriyanto (2019) is as follows:

$$\text{Debt To Equity Ratio} = \frac{\text{total debt}}{\text{total equity}}$$

3. Company Size (X3)

The size of the company is measured using the total assets owned by the company, with the following formulation:
Company size = LN Total Assets

4. Earning Per Share (X4)

Earnings per share is used to look at the profit that can be obtained from per share and measure the company's performance rather than the dividends shared, usually this data will affect the price of shares in the market. The *earning per share* formula according to Kurniasari and Erlina (2021) is as follows:

$$\text{Earnings Per Share} = \frac{\text{net profit after tax}}{\text{number of shares outstanding}}$$

RESULTS AND DISCUSSION

Research Results

Descriptive Analysis Test

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Profitability	135	-1396.86	2.07	-10.6287	120.23307
Financial Leverages	135	-160.64	21.90	-.8699	16.15865
Company Size	135	18.17	32.28	27.7511	2.32511
EPS	135	-1.32	12.42	.3319	1.30469
Valid N (listwise)	135				

Table 4.1 Descriptive Analysis Test

The results of the descriptive statistical calculation of independent variables in this study, as shown in table 4.1 above, with a total sample of 135 observations, can be explained as follows:

1. The profitability variable with the *Return on Assets* (ROA) proxy shows a minimum value of -1,396.86 and a maximum value of 2.07 and has a *mean* of -10.6287. It appears that the profitability variable has a standard deviation

- of 120.23307. A standard deviation greater than *the mean* indicates that the data used has a large distribution or the presence of a large enough gap of the lowest and highest ROA so that the data deviation is said to be not good.
- The *leverage* variable proxied with the *Debt to Equity Ratio* (DER) shows a minimum value of -160.64 and a maximum value of 21.90. While the *mean* value (average) is -.8699 and the standard deviation is 16.15865. A standard deviation greater than the *mean* indicates that the data used has a large distribution or the presence of a large enough gap from the lowest and highest DER so that the data deviation is said to be less good.
 - The company size variable calculated using the LN formula for total assets shows a minimum value of 18.17 and a maximum value of 32.28. While the *mean* value (average) is 27.7511 and the standard deviation is 2.32511. The standard deviation < *mean* indicates that the data used in the company size variable has a small distribution so that the deviation of the data can be said to be good.
 - The *earnings per share* (EPS) variable shows a minimum value of -1.32 and a maximum value of 12.42. Meanwhile, the *mean* value (average) is 0.3319 and the standard deviation is 1.30469. A standard deviation greater than the *mean* indicates that the data used has a large distribution or the presence of a large enough gap of the lowest and highest EPS so that the data deviation is said to be less good.

Logistic Regression Analysis Test Variables in the Equation

	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Profitability	-70.158	16.412	18.273	1	.000	.000	.000	.000
Financial Leverages	-.144	.184	.611	1	.434	.866	.604	1.242
Company Size	.336	.156	4.620	1	.032	1.399	1.030	1.900
.EPS	.382	.221	2.988	1	.084	1.465	.950	2.258
Constant	-7.822	4.275	3.348	1	.067	.000		

a. Variable(s) entered on step 1: Profitability, Financial Leverages, Company Size, EPS.

Source: Data from IDX processed, 2022

Table 4.2 Logistic Regression Analysis Test

To test the hypothesis, a logistic regression test was used which was carried out on all variables, namely profitability, *financial leverage*, company size and *earnings per share* of *financial distress*. Based on table 4.2, the following logistics equation is obtained:

$$Y = -7.822 - 70.158X_1 - 0.144X_2 + 0.336X_3 + 0.382X_4$$

The resulting figures from such tests can be described as follows:

a) Constant (a)

From the results of the logistic regression analysis test, it can be seen that the constant of -7,822 shows that without the influence of free variables, namely profitability, *financial leverage*, company size and *earnings per share*, the probability of *financial distress* will decrease by 7,822.

b) Regression coefficient (b) X_1

The profitability variable (X_1) has a regression coefficient of -70.158, meaning that if the profitability variable increases by one unit, the probability of *financial distress* (Y) will decrease by 70.158, assuming that the other variables remain.

c) Regression coefficient (b) X_2

The *financial leverage* variable (X_2) has a regression coefficient of -0.144, meaning that if the *financial leverage* variable increases by one unit, the probability of *financial distress* (Y) will decrease by 0.144, assuming that the other variables remain.

d) Regression coefficient (b) X_3

The company size variable (X_3) has a regression coefficient of 0.336, meaning that if the company size variable increases by one unit, the probability of *financial distress* (Y) will increase by 0.336, assuming that other variables remain.

e) Regression coefficient (b) X_4

The *earnings per share* variable (X_4) has a regression coefficient of 0.382, meaning that if the EPS variable increases by one unit, the probability of *financial distress* (Y) will increase by 0.382, assuming that the other variables remain.

Assessing a Fit Model

a. Omnibus Tests of Model Coefficients

Table 4. 3 Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	95.064	4	.000
	Block	95.064	4	.000
	Type	95.064	4	.000

Source: Data from IDX processed, 2022

Furthermore, to find out that a logistic regression model is the right model, it will first be seen the form of fit and feasibility of the model as a whole. The results of this test can be seen in table 4.3. The test results in table 4.3 obtained a *Chi Square* value of 95.064 with a sig. value of $0.000 < 0.05$.

From these results, it can be seen that the significant value is smaller than the alpha value (0.05), so it can be concluded that the four independent variables in this study, namely profitability, *financial leverage*, company size and *earnings per share* as a whole are stated to have an effect on the dependent variable, namely *financial distress*, so that H_0 is accepted which means that empirical data is suitable or *fit* with models. Thus this research model is worth using.

b. Overall Model Test

Block 0: Beginning Block

Table 4.4 Overall Model Test; Block 0: Beginning Block

Iteration History^{a,b,c}

			Coefficients
Iteration		-2 Likelihood logs	Constant
Step 0	1	179.970	.459
	2	179.967	.468
	3	179.967	.468

a. Constant is included in the model.

b. Initial -2 Log Likelihood: 179.967

c. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Source: Data from IDX processed, 2022

Furthermore to find out whether the free variables added into the model can significantly improve the model used statistically -2 Log Likelihood. In Block Number = 0 (Beginning Block) i.e. the first model only with a constant in the absence of free variables obtained a value of -2 Log Likelihood of 179.967.

Table 4. 5 Block 1: Method = Enter

Block 1: Method = Enter

Iteration History^{a,b,c,d}

			Coefficients				
Iteration		-2 Likelihood logs	Constant	Profitability	Financial Leverages	Company Size	EPS
Step 1	1	169.939	-3.738	-.002	-.011	.154	-.345
	2	168.436	-4.656	-.003	-.017	.190	-.561
	3	168.238	-4.905	-.004	-.019	.200	-.630
	4	168.081	-4.948	-.007	-.019	.201	-.634
	5	166.162	-5.513	-.056	-.020	.221	-.646
	6	164.729	-6.130	-.132	-.020	.243	-.658
	7	162.400	-6.218	-.336	-.020	.246	-.641
	8	155.450	-6.414	-1.293	-.020	.252	-.562
	9	137.991	-5.568	-5.227	-.020	.219	-.289
	10	112.174	-6.169	-15.841	-.025	.241	-.032
	11	94.701	-6.703	-31.359	-.033	.269	.088
	12	87.226	-6.843	-48.543	-.051	.286	.211
	13	85.120	-7.477	-62.918	-.113	.319	.324
	14	84.906	-7.794	-69.337	-.142	.334	.375

	15	84.903	-7.822	-70.147	-.144	.336	.382
	16	84.903	-7.822	-70.158	-.144	.336	.382
	17	84.903	-7.822	-70.158	-.144	.336	.382

a. Method: Enter

b. Constant is included in the model.

c. Initial -2 Log Likelihood: 179.967

d. Estimation terminated at iteration number 17 because parameter estimates changed by less than .001.

Source: Data from IDX processed, 2022

Based on table 4.4 and table 4.5, it can be seen that the value of *-2 Log Likelihood* on *Block Number 0* is 179,967 and on *Block Number 1* it drops to 84,903, it can be concluded that this regression model is feasible to use.

Table 4. 6 Coefficient of Determination Test

Coefficient of Determination Test

Model Summary

Step	-2 Likelihood logs	Cox & Snell R Square	Nagelkerke R Square
1	84,903 ^a	.505	.686

a. Estimation terminated at iteration number 17 because parameter estimates changed by less than .001.

Source: Data from IDX processed, 2022

The coefficient of determination is used to find out how much influence the variables are – independent variables are able to clarify the influence of dependent variables. The coefficient of determination in logistic regression can be seen in the *Value of Nagelkarke R Square*. The Value of *Nagelkarke R Square* can be interpreted like the value of *R Square* in multiple regression. This value can be seen by dividing the *Cox & Snell Square* value by its maximum value.

Table 4.6 above shows the value of *Nagelkarke R Square* of 0.686 > 0.05, which means that the influence of the dependent variable that can be explained by the independent variable is 68.6%, the remaining 31.4% is explained by the influence of other variables outside this study, or together the variables of profitability, *financial leverage*, company size and EPS can explain the prediction of *financial distress* of 0.686 or 68.6% which means that the value is getting closer to the number one (1) then this model is a model of *goodness of fit*.

Table 4. 7 Qualification Matrix

Qualification Matrix

Classification Table^a

Classification Table					
			Predicted		
			Financial Distress		Percentage Correct
	Observed		Non Financial Distress	Financial Distress	
Step 1	Financial Distress	Non Financial Distress	43	9	82.7
		Financial Distress	6	77	92.8
	Overall Percentage				88.9

a. The cut value is .500

Source: Data from IDX processed, 2022

The qualification matrix will show the predictive power of the regression model to predict the likelihood of a company *experiencing financial distress*. The classification power can be demonstrated by the classification table between the predictions of the logistic regression model and the observation results shown in table 4.7.

Based on the appendix of companies experiencing *financial distress* and table 4.7 of the classification *table* results, it can be seen that according to the predictions of companies experiencing *financial distress* are 83 companies, while the actual observations show that companies that experience *financial distress* conditions is a total of 77 companies. Then the accuracy of this model is 77/83 or 92.7% rounded to 93%. Furthermore, according to the predictions of companies that did not experience *financial distress*, there were 52 companies, while the actual observations showed that there were 43 companies that did not experience *financial distress*. Then the accuracy of this model is 43/52 enterprises or 82.6% rounded to 83%.

Hypothesis Test

Table 4. 8 Hypothesis Test

Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Profitability	-70.158	16.412	18.273	1	.000	.000	.000	.000
	Financial Leverages	-.144	.184	.611	1	.434	.866	.604	1.242
	Company Size	.336	.156	4.620	1	.032	1.399	1.030	1.900
	EPS	.382	.221	2.988	1	.084	1.465	.950	2.258
	Constant	-7.822	4.275	3.348	1	.067	.000		

a. Variable(s) entered on step 1: Profitability, Financial Leverages, Company Size, EPS.

Source: Data from IDX processed, 2022

The results of the hypothesis test as presented in table 4.8 are as follows:

1. The profitability variable (X_1) has a *Wald* value of 18.273 with a significant rate of $0.000 < 0.05$ and a negative coefficient value of B. So it can be concluded that the profitability variable has a negative and significant effect on the *financial distress* variable, then H_1 is accepted.
2. The *leverage* variable (X_2) shows a *Wald* value of 0.611 with a significant level of $0.434 > 0.05$ and a negative coefficient B value. These results show that the *leverage* variable has no effect on the *financial distress* variable, therefore H_2 is rejected.
3. The company size variable (X_3) shows a *Wald* value of 4,620 with a significant rate of $0.032 < 0.05$ and a positive coefficient B value. So it can be concluded that the company size variable has a positive and significant effect on the *financial distress* variable, so that H_3 is rejected.
4. The EPS variable (X_4) shows a *Wald* value of 2,988 with a significant rate of $0.084 > 0.05$ and a positive coefficient value of B. So it can be concluded that the EPS variable has no effect on the *financial distress* variable, thus H_4 is rejected.

DISCUSSION

The Effect of Profitability on Financial Distress

After testing with logistic regression, results were obtained for profitability variables, namely the *Wald* value of 18.273 with a significant level of $0.000 < 0.05$ and a negative coefficient value of B. So it can be concluded that profitability has a negative and significant influence on *financial distress*. The first hypothesis (H_1) which reads that profitability negatively affects *financial distress* in transportation sector manufacturing companies listed on the IDX in 2019 – 2021 is acceptable.

Signal theory states that the company is trying to provide a signal in the form of *goodnews* to *stakeholders*, this is done so that the company is easy to have access to funding, which in turn will affect the level of *financial distress*. A signal of a positive nature can be realized if the profit obtained by the company in one period has increased, and vice versa. With the number of assets and equity that are fixed and do not change, the company is said to be more *profitable* if the value of profitability owned increases periodically, because if the profitability value continues to increase periodically, it can be ascertained that the company is not in a difficult condition in terms of obtaining external and internal funding, so that the risk of declining profits can be avoided.

The results of this study are consistent and in line with research conducted by Finishtya (2019), Rahmy (2015), Masdupi *et al.* (2018), Murni (2018), Nilasari (2021) and Fitria & Syahreenny (2022). The results of this study do not support the research that has been carried out by Dirman (2020), and Saputra & Salim (2020), which states that profitability has a positive and significant effect on *financial distress*.

The Effect of Financial Leverage on Financial Distress

After testing with logistic regression, the results for the *financial leverage* variable were obtained, namely the *Wald* value of 0.611 with a significant level of $0.434 > 0.05$ and a negative coefficient value of B. So it can be concluded that *financial leverage* does not affect *financial distress*. The second hypothesis (H_2) which reads that *financial leverage* has a positive effect on *financial distress* in transportation sector manufacturing companies listed on the IDX in 2019 – 2021 was rejected.

Based on the results of this test, it means that the size of the *leverage* value in a company will not affect the level of *financial distress* as long as the company's debt can be processed properly and structured. Large companies tend to rely mostly on financing through funds coming from banks. Therefore, it can be said that the company is better able to avoid the financial difficulties of its company because the loan is used as well as possible. So, a company that manages its debt well, is structured and appropriate will not affect the level of *financial distress* even though the company has a high leverage ratio value.

The results of this study are consistent and in line with research conducted by Dirman (2020), Saputra & Salim (2020), and Rahmy (2015). Another case with the results of research conducted by Azalia & Rahayu (2020), Nilasari (2021) and Fitria & Syahrenny (2022) which showed that *financial leverage* has a positive and significant effect on *financial distress*.

Effect of Company Size on Financial Distress

After testing with logistic regression, results were obtained for the Company Size variable, namely the Wald value of 4,620 with a significant level of $0.032 < 0.05$ and a positive coefficient value of B. So it can be concluded that the size of the company has a positive and significant effect on *financial distress*. The third hypothesis (H3) which reads that the size of the company negatively affects the *financial distress* of transportation sector manufacturing companies listed on the IDX in 2019 – 2021 was rejected.

The larger the size of the company, the less likely it is to face financial difficulties, but nevertheless large companies still need deeper costs and supervision. If the company is unable to supervise the flow of fund management as expected, the costs incurred to finance the company's operations will become greater and may cause *financial distress*.

The results of this study support research that has been previously conducted by Nilasari (2021), Salim & Dillak (2021), and Safitri (2021) which states that the size of the company has a positive and significant effect on *financial distress*. The results of this study do not support the research that has been conducted by Azalia & Rahayu (2020), Dirman (2020), and Zhafirah & Majidah (2019) which concluded that *firm size* has a negative and significant effect on *financial distress*.

The Effect of Earnings Per Share on Financial Distress

After testing with logistic regression, the results for the EPS variable were obtained, namely the Wald value of 2,988 with a significant level of $0.084 > 0.05$ and a positive coefficient value of B. So it can be concluded that *earnings per share* has no effect on *financial distress*. The fourth hypothesis (H4) which reads *earnings per share* negatively affects *financial distress* in transportation sector manufacturing companies listed on the IDX in 2019 – 2021 was rejected.

The greater the EPS value, the smaller the probability of *financial distress*. However, in this study there was an insignificant influence between EPS and *financial distress* because the value of the number of ordinary shares outstanding was higher than the value of the company's net profit, this statement can be proven from the EPS data of transportation sector manufacturing companies listed on the IDX in 2019-2021 attached, the total amount of net profit of all companies (45 manufacturing companies in the infrastructure sub-sector, utilities and transportation) and for 3 consecutive years (2019-2021) is IDR 13,703,319,084,781, while for the total value of ordinary shares outstanding throughout the company and for 3 consecutive years it is IDR 182,143,889,615,193. *Earnings per share* itself is declared to experience a positive figure if the net profit value increases or remains and the number of ordinary shares outstanding decreases or remains.

The results of this study are in line with research previously conducted by Sagala (2018) which stated that *earnings per share* (EPS) has an insignificant positive influence on *financial distress*. The results of this study do not support the research that has been carried out by Kurniasari & Erlina (2021) which states that *earnings per share* (EPS) has a positive and significant influence on the condition of *financial distress* and the results of this study also do not support the research that has been conducted by Murni (2018) which states that *earnings per share* (EPS) has an insignificant negative influence on the condition of *financial distress*.

CONCLUSION

Based on the results of the study, several conclusions can be drawn, including:

1. Profitability proxied with ROA has a negative and significant effect on *financial distress* in transportation sector manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2019-2021. This means that the greater the company's profitability, the smaller the probability of the company experiencing *financial distress*.
2. *Financial leverage* proxied by DER has no effect on the condition of *financial distress* in transportation sector manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2019-2021. This means that the size of the *leverage* value of a company will not affect the level of *financial distress* as long as the company's debt can be processed properly and structured.
3. The size of the Company proxied with the LN *total asset* has a positive and significant effect on the condition of *financial distress* in manufacturing companies in the transportation sector listed on the Indonesia Stock Exchange (IDX) in 2019-2021. This means that large companies still need deeper costs and supervision, because companies that cannot supervise the flow of fund management will cause the costs incurred to finance operations to become greater and cause *financial distress*.
4. *Earnings per share* (EPS) has no effect on the condition of *financial distress* in manufacturing companies in the transportation sector listed on the Indonesia Stock Exchange (IDX) in 2019-2021. In this study, there was an insignificant influence between EPS and *financial distress* because the value of the number of ordinary shares outstanding was higher than the value of the company's net profit.

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